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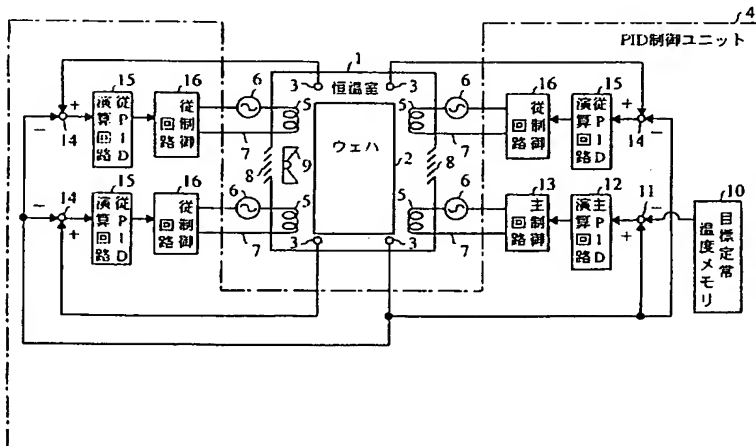
- (51) 国際特許分類<sup>7</sup>: G05B 11/32 (74) 代理人: 田澤博昭, 外 (TAZAWA, Hiroaki et al.); 〒100-0013 東京都千代田区霞が関三丁目7番1号 大東ビル7階 Tokyo (JP).
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添付公開書類:  
— 国際調査報告書

2 文字コード及び他の略語については、定期発行される各 PCT ガゼットの巻頭に掲載されている「コードと略語のガイダンスノート」を参照。

(54) Title: CONTROL SYSTEM AND CONTROLLER

(54) 発明の名称: 制御システムおよび制御装置



- 1...THERMOSTATIC CHAMBER  
2...WAFER  
4...PID CONTROL UNIT  
10...DESIRED STEADY TEMPERATURE MEMORY  
12...MAIN PID OPERATING CIRCUIT  
13...MAIN CONTROL CIRCUIT  
15...SUB-PID OPERATING CIRCUIT  
16...SUBCONTROL CIRCUIT

(57) Abstract: A control system and a controller for controlling the wafer temperature suitably in the production process of a semiconductor device wherein overshoot or undershoot can be suppressed effectively after a desired steady temperature is reached by dividing the controlled system into a plurality of zones, controlling the zones separately, and making simultaneous the timings of reaching the desired steady temperatures by the primary control.

[続葉有]



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(57) 要約:

制御対象を複数のゾーンに分けてゾーン毎に制御しつつ、本来の制御によって目標定常温度への到達タイミングを揃え、目標定常温度に到達した後におけるオーバシュートやアンダーシュートの発生を効果的に抑制することができ、半導体素子を製造するプロセスにおいてウェハの温度を好適に制御することができる。

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP01/08240

A. CLASSIFICATION OF SUBJECT MATTER  
Int.Cl<sup>7</sup> G05B11/32

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl<sup>7</sup> G05B11/32, G05B11/36, G05D23/19

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1926-1996	Jitsuyo Shinan Toroku Koho	1996-2001
Kokai Jitsuyo Shinan Koho	1971-2001	Toroku Jitsuyo Shinan Koho	1994-2001

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	JP 09-311727 A (Mitsubishi Heavy Industries, Ltd.), 02 December, 1997 (02.12.97), Fig. 1 (Family: none)	1, 4 2-3, 5-16
X A	JP 06-065901 U (Rika Kogyo K.K.), 16 September, 1994 (16.09.94), Fig. 5 (Family: none)	6-7 1-5, 8-16
A	JP 07-200078 A (Komatsu Electronic Metals Co., Ltd.), 04 August, 1995 (04.08.95), Fig. 1 (Family: none)	8, 16
A	JP 62-015603 A (Omron Tateishi Electronics Co.), 24 January, 1987 (24.01.87), Fig. 1 (Family: none)	1-16
A	JP 48-053180 A (Tanaka Keiki Kogyo K.K.), 26 July, 1973 (26.07.73), Fig. 3 (Family: none)	1-5

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search  
18 December, 2001 (18.12.01)Date of mailing of the international search report  
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Japanese Patent Office

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